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***DISCRETE POWER DIODES and THYRISTORS***  
***DATA BOOK***

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## STANDARD RECOVERY DIODES

## Hockey Puk Version

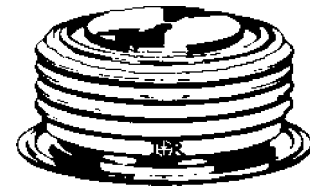
### Features

- Wide current range
- High voltage ratings up to 3000V
- High surge current capabilities
- Diffused junction
- Hockey Puk version
- Case style DO-200AB (B-PUK)

### Typical Applications

- Converters
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications

1600A



case style DO-200AB (B-PUK)

### Major Ratings and Characteristics

Parameters	SD1500C..L	Units
$I_{F(AV)}$	1600	A
@ $T_{hs}$	55	°C
$I_{F(RMS)}$	3010	A
@ $T_{hs}$	25	°C
$I_{FSM}$ @ 50Hz	16600	A
@ 60Hz	17400	A
$I^2t$ @ 50Hz	1386	KA <sup>2</sup> s
@ 60Hz	1265	KA <sup>2</sup> s
$V_{RRM}$ range	400 to 3000	V
$T_J$	- 40 to 180	°C

**ELECTRICAL SPECIFICATIONS**

## Voltage Ratings

Type number	Voltage Code	$V_{RRM}$ , maximum repetitive peak reverse voltage V	$V_{RSM}$ , maximum non-repetitive peak rev. voltage V	$I_{RRM}$ max. @ $T_J = T_J$ max. mA
SD1500C..L	04	400	500	50
	08	800	900	
	12	1200	1300	
	16	1600	1700	
	20	2000	2100	
	25	2500	2600	
	30	3000	3100	

## Forward Conduction

Parameter	SD1500C..L	Units	Conditions
$I_{F(AV)}$ Max. average forward current @ Heatsink temperature	1600(820)	A	180° conduction, half sine wave Double side (single side) cooled
	55(85)	°C	
$I_{F(RMS)}$ Max. RMS forward current	3010	A	@ 25°C heatsink temperature double side cooled
$I_{FSM}$ Max. peak, one-cycle forward, non-repetitive surge current	16600	A	t = 10ms No voltage
	17400		t = 8.3ms reappplied
	14000		t = 10ms 100% $V_{RRM}$
	14700		t = 8.3ms reappplied
$I^2t$ Maximum $I^2t$ for fusing	1386	KA <sup>2</sup> s	t = 10ms No voltage
	1265		t = 8.3ms reappplied
	980		t = 10ms 100% $V_{RRM}$
	895		t = 8.3ms reappplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	13860	KA <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reappplied
$V_{F(TO)1}$ Low level value of threshold voltage	0.83	V	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$V_{F(TO)2}$ High level value of threshold voltage	0.95		( $I > \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f1}$ Low level value of forward slope resistance	0.27	mΩ	(16.7% x $\pi$ x $I_{F(AV)} < I < \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$r_{f2}$ High level value of forward slope resistance	0.25		( $I > \pi$ x $I_{F(AV)}$ ), $T_J = T_J$ max.
$V_{FM}$ Max. forward voltage drop	1.64	V	$I_{pk} = 3000A$ , $T_J = T_J$ max, $t_p = 10ms$ sinusoidal wave

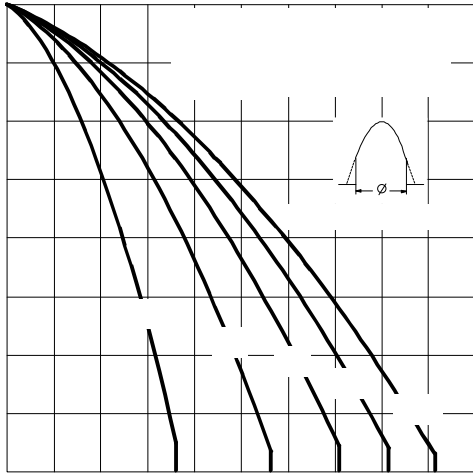


Fig. 3 - Current Ratings Characteristics

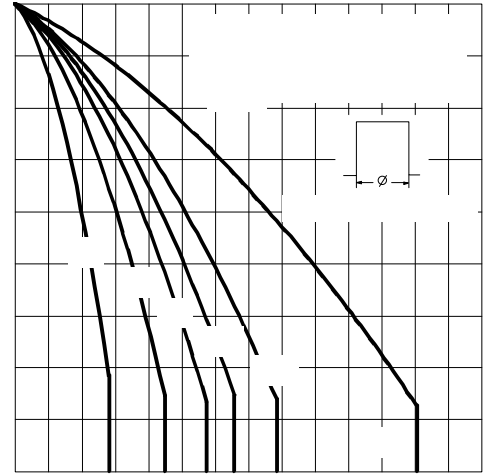


Fig. 4 - Current Ratings Characteristics

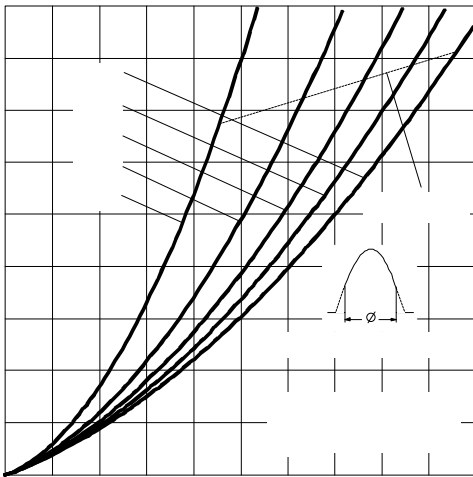


Fig. 5 - Forward Power Loss Characteristics

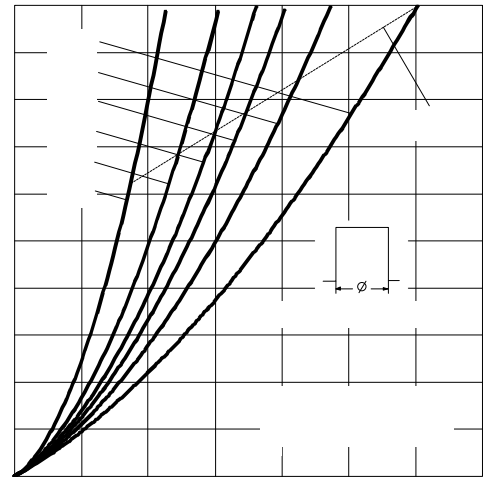


Fig. 6 - Forward Power Loss Characteristics

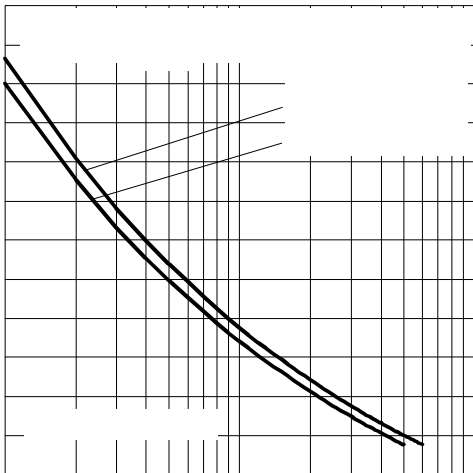


Fig. 7 - Maximum Non-Repetitive Surge Current

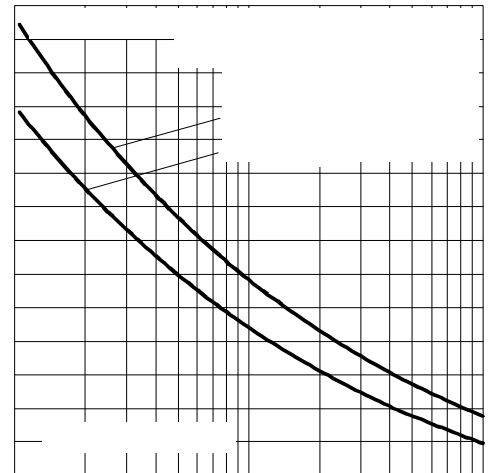


Fig. 8 - Maximum Non-Repetitive Surge Current

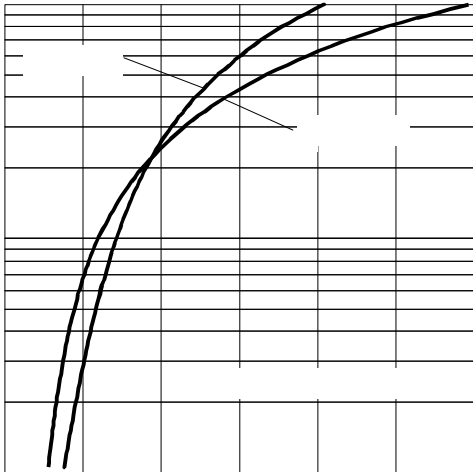


Fig. 9 - Forward Voltage Drop Characteristics

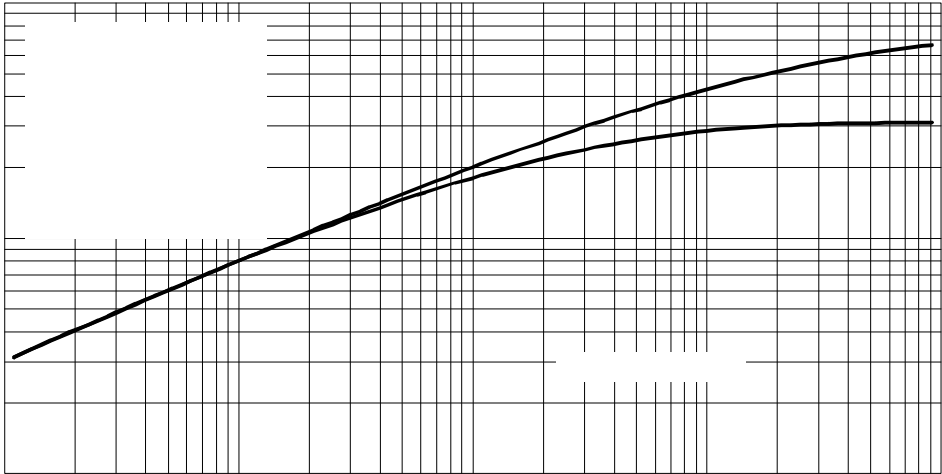


Fig. 10 - Thermal Impedance  $Z_{thJC}$  Characteristics

## Thermal and Mechanical Specifications

Parameter	SD1500C..L	Units	Conditions
T <sub>J</sub> Max. junction operating temperature range	-40 to 180	°C	
T <sub>stg</sub> Max. storage temperature range	-55 to 200		
R <sub>thJ-hs</sub> Max. thermal resistance, junction to heatsink	0.073 0.031	K/W	DC operation single side cooled DC operation double side cooled
F Mounting force, ± 10%	14700 (1500)	N (Kg)	
wt Approximate weight	255	g	
Case style	DO-200AB(B-PUK)		See Outline Table

 $\Delta R_{thJ-hs}$  Conduction

(The following table shows the increment of thermal resistance  $R_{thJ-hs}$  when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction		Rectangular conduction		Units	Conditions
	Single Side	Double Side	Single Side	Double Side		
180°	0.009	0.009	0.006	0.006	K/W	T <sub>J</sub> = T <sub>J</sub> max.
120°	0.011	0.011	0.011	0.011		
90°	0.014	0.014	0.015	0.015		
60°	0.020	0.020	0.021	0.021		
30°	0.035	0.035	0.036	0.036		

## Ordering Information Table

Device Code	
<b>1</b>	- Diode
<b>2</b>	- Essential part number
<b>3</b>	- 0 = Standard recovery
<b>4</b>	- C = Ceramic Puk
<b>5</b>	- Voltage code: code x 100 = V <sub>RRM</sub> (see Voltage Ratings Table)
<b>6</b>	- L = Puk Case DO-200AB (B-PUK)

Outline Table

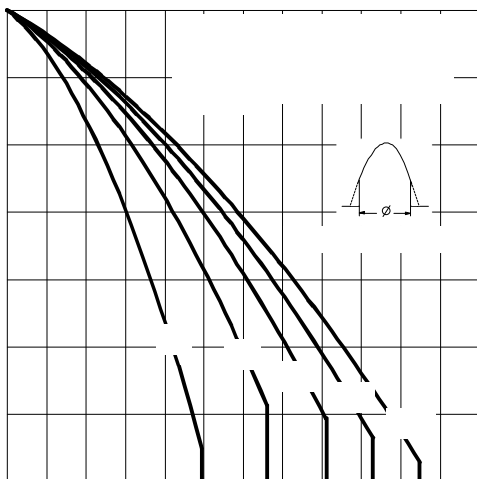
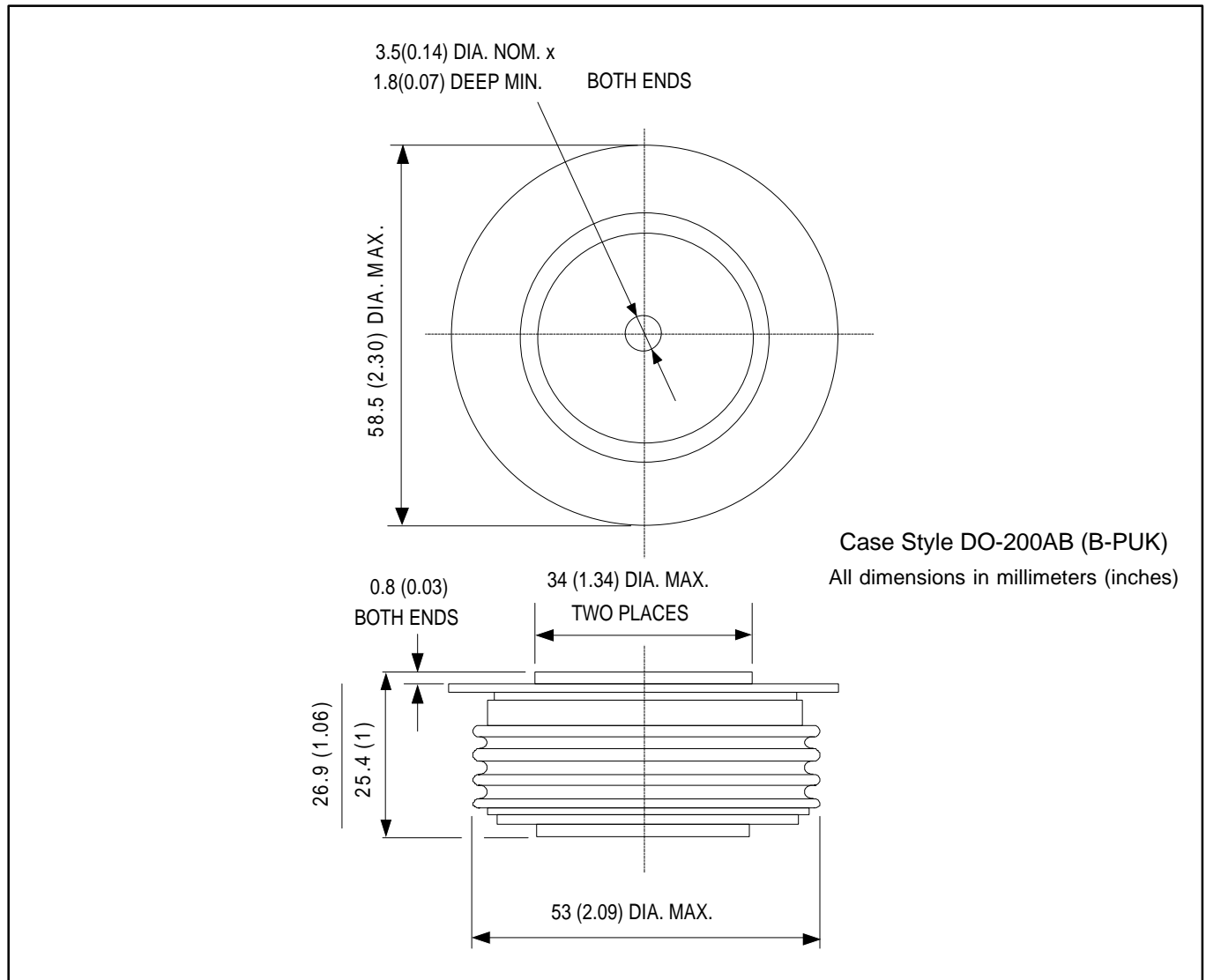


Fig. 1 - Current Ratings Characteristics

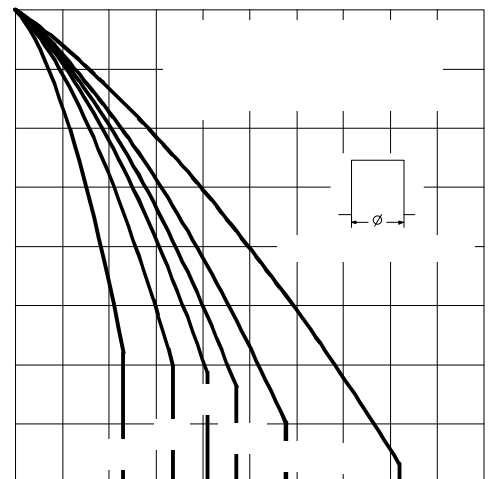


Fig. 2 - Current Ratings Characteristics